

REMARKS

The Examiner is thanked for the careful examination of the application.

However, favorable reconsideration of the above-identified application is requested in view of the amendments made herein and the following remarks.

Claims 1-20 are pending, with Claims 1, 6, 7 and 12 being independent.

Claims 6 and 18 are allowable.

Claims 1-5, 7-17, and 19-20 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,581,613 to Nagashima et al., hereinafter *Nagashima*.

Paragraph [0029] and Fig. 3 of the published application describe an embodiment of the present invention, where the transfer of data along an internal bus 40 is dependent on a scan enable signal and a print enable signal. The scan enable signal allows data to travel from a scan unit to a controller, and the print enable signal allows data to travel from the controller to the printing unit. The scan enable signal and print enable signal are based on a clock signal, as shown in Fig. 2. As the phases are offset by half, *i.e.*, 180 degrees, only one or the other is active at any time. The scan image data and the print image data are alternately transferred on a pixel by pixel basis through the internal bus, based on the cycle of the clock signal. The purpose is to allow a single bus to alternately transfer data from a print unit to a controller and from the controller to the scan unit, thereby achieving substantially "simultaneous" transfer.

Claim 1 broadly encompasses that subject matter and is directed to a digital copying machine comprising an image reader that reads an image of an original document and generates scan image data, a printing unit that prints based on print

image data, a controller through which the scan image data and the print image data are exchanged with an external computer, an internal bus that transmits the scan image data generated by the image reader to a controller and that transmits the print image data from the controller to the printing unit, a signal generator that generates a signal based on an operation timing of the printing unit, and a switch that, in response to the signal, switches the internal bus between transmission from the image reader to the controller and transmission from the controller to the printing unit.

In a preferred exemplary embodiment, the internal bus is represented by reference numeral 40 in Fig. 2. According to one aspect of the present invention, it is disadvantageous to pause the printing unit in the middle of printing a page. The timing of transferring the scan image data is not as sensitive. Accordingly, as set forth in each of the claims, the timing of switching the data transfer is based on an operation of the printing unit, not the image reader.

In the Office Action, the Examiner alleges that the signal generator of *Nagashima* generates a signal based on an operation timing, and that the image sync signal would be in synchronization with the printer when the data is intended for printing. However, there is no indication in *Nagashima* that the signal generator generates a signal **based** on an operation timing of the printing unit. The fact that the *Nagashima* printer and the sync signal are synchronized does not mean that the signal is based on an operation timing of the printing unit. *Nagashima* does not indicate what the synch signal is based on. As a result, in *Nagashima*, since the synch signal is not generated based on an operation timing of the printing unit, the transfer of data cannot be optimized around the operation of the printing unit. In

other words, in *Nagashima*, the printing unit may be paused at times that are not advantageous. The present invention overcomes this problem by using a signal generator that generates a signal based on an operation timing of the printing unit.

Accordingly, as now amended, the claims of the present application are now patentable over *Nagashima*.

Claims 7 and 12 are allowable for similar reasons as those set forth above with regard to Claim 1.

Claims 2-5, 8-11 and 13-16 are allowable at least by virtue of their dependence from allowable independent claims, and also because they additionally define over the cited document. For example, Claims 2 and 8 recite that the signal generated by the signal generator is a clock signal issued based on an operation timing for each pixel.

Similarly, Claims 3 and 9 recite that the signal generated by the signal generator is a horizontal synchronization signal issued based on an operation timing for each line. The Official Action again points to *Nagashima*'s disclosure in column 3, lines 33-35 of the clock signal, and asserts that the clock signal is "issued based on an operation timing for each line" and directs attention to Figures 2 and 5. However, that portion of *Nagashima* and the portions referring to Figures 2 and 5, do not refer to issuing a clock signal based on an operation timing for each line. Therefore, should the rejections be maintained, it is requested that it be shown where or how *Nagashima* refers to a line, as recited in the claims, and that it be shown where or how *Nagashima* discloses or suggests issuing a clock signal based on an operation timing for each line.

Claim 14 recites that a synchronization signal is issued on an operation timing for each line. For reasons along the lines of those set forth with regard to Claims 3 and 9, Claim 14 is not disclosed or suggested by *Nagashima*.

Claims 17-20 generally recite that the bus is switched, and switched back again repeatedly and at predetermined fixed intervals. *Nagashima* does not disclose that subject matter.

For at least the above-reasons, it is requested that all the rejections be withdrawn and that this application be allowed in a timely manner.

Should any questions arise in connection with this application, or should the Examiner feel that a teleconference would be helpful in resolving any remaining issues pertaining to this application, the undersigned requests that he be contacted at the number indicated below.

Respectfully submitted,

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